UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO	CONFIRMATION NO
09/965,482	09/27/2001	Henry W. Bonk	402200004DVG	5281

27572 7590 05/21/2003

HARNESS, DICKEY & PIERCE, P.L.C.
P.O. BOX 828
BLOOMFIELD HILLS, MI 48303

EXAMINER
BISSETT, MELANIE D

ART UNIT	PAPER NUMBER
1711	4

DATE MAILED: 05/21/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Application No.	Applicant(s)
09/965,482	BONK ET AL

Office Action Summary

Examiner	Art Unit
Melanie D. Bissett	1711

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *51,52 and 176-195* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *51,52,176-181,183-187,189,192 and 195* is/are rejected.

7)☒ Claim(s) *182,188,190,191,193 and 194* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *27 September 2001* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3 .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: The brief description of drawings notes a line 6-6 in figure 6. Figure 6 does not disclose a line 6-6 but does disclose a line 7-7. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference sign(s) not mentioned in the description: parts 28B, 28C, 28D, 28E, 28F, 130, 132, and 170. A proposed drawing correction, corrected drawings, or amendment to the specification to add the reference sign(s) in the description, are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Priority

3. Applicant has not complied with one or more conditions for receiving the benefit of an earlier filing date under 35 U.S.C. 120 as follows:

An application in which the benefits of an earlier application are desired must contain a specific reference to the prior application(s) in the first sentence of the specification of in an application data sheet (37 CFR 1.78(a)(2) and (a)(5)). The specific reference to any prior nonprovisional application must include the relationship (i.e.,

continuation, divisional, or continuation-in-part) between the applications except when the reference is to a prior application of a CPA assigned the same application number.

4. It is noted that this application appears to claim subject matter disclosed in prior Application No. 09/436,869, filed 11/9/99. A reference to the prior application must be inserted as the first sentence of the specification of this application or in an application data sheet (37 CFR 1.76), if applicant intends to rely on the filing date of the prior application under 35 U.S.C. 119(e) or 120. See 37 CFR 1.78(a). For benefit claims under 35 U.S.C. 120, the reference must include the relationship (i.e., continuation, divisional, or continuation-in-part) of all nonprovisional applications. Also, the current status of all nonprovisional parent applications referenced should be included.

If the application is a utility or plant application filed under 35 U.S.C. 111(a) on or after November 29, 2000, the specific reference to the prior application must be submitted during the pendency of the application and within the later of four months from the actual filing date of the application or sixteen months from the filing date of the prior application. If the application is a utility or plant application which entered the national stage from an international application filed on or after November 29, 2000, after compliance with 35 U.S.C. 371, the specific reference must be submitted during the pendency of the application and within the later of four months from the date on which the national stage commenced under 35 U.S.C. 371(b) or (f) or sixteen months from the filing date of the prior application. See 37 CFR 1.78(a)(2)(ii) and (a)(5)(ii). This time period is not extendable and a failure to submit the reference required by 35 U.S.C. 119(e) and/or 120, where applicable, within this time period is considered a waiver of

any benefit of such prior application(s) under 35 U.S.C. 119(e), 120, 121 and 365(c). A priority claim filed after the required time period may be accepted if it is accompanied by a grantable petition to accept an unintentionally delayed claim for priority under 35 U.S.C. 119(e), 120, 121 and 365(c). The petition must be accompanied by (1) the reference required by 35 U.S.C. 120 or 119(e) and 37 CFR 1.78(a)(2) or (a)(5) to the prior application (unless previously submitted), (2) a surcharge under 37 CFR 1.17(t), and (3) a statement that the entire delay between the date the claim was due under 37 CFR 1.78(a)(2) or (a)(5) and the date the claim was filed was unintentional. The Director may require additional information where there is a question whether the delay was unintentional. The petition should be addressed to: Mail Stop Petition, Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 51-52, 176-181, 183, 189, and 195 are rejected under 35 U.S.C. 102(b) as being anticipated by Mitchell et al. as evidenced by Dow Plastics. Mitchell et al. (US 5,952,065 A) can be found on the applicant's Form PTO-1449. It is noted that the present application relates to a parent case filed 6/7/1995, US App. No. 08/475,275. However, the application does not provide support for a gas transmission rate of less

than 15.0, as the specification only teaches rates of less than 10.0. Therefore, it is the examiner's position that the effective filing date of the present specification is 12/12/1995, and the Mitchell et al. reference, filed 8/31/1994, is available under 35 USC 102(b).

7. Mitchell discloses cushioning devices made from flexible membranes comprising at least one thermoplastic urethane layer and at least one ethylene vinyl alcohol copolymer layer (EVOH) (abstract). Preferred gas transmission rates for the membranes are less than 10 and most preferably less than 2.0 (col. 4 lines 35-46). Nitrogen is a preferred gas (col. 6 lines 25-40). Polyester polyurethanes are noted as suitable thermoplastic polyurethane (TPU) outer layer materials, and inner layer materials include EVOH, polyvinylidene chloride, copolymers of acrylonitrile and methyl acrylate, PET, polyamides, and polyurethane engineering thermoplastics (col. 9 lines 17-52). The materials are preferably co-extruded together to form an inflatable membrane (col. 12 lines 13-23) at a pressure of at least about 200 psi while the layers form hydrogen bonds (col. 13 lines 7-14). Note Figure 19, showing nitrogen gas transmission rates of multi-layered membranes.

8. Mitchell does not note the tensile strength, 100% tensile modulus, or durometer hardness of the membranes formed in the invention. However, Mitchell does note particular structures, such as a three-layered sandwich structure of an EVAL™ EVOH layer between two layers of Pellethane™ 2355-80AE (col. 14 lines 7-32). Dow Plastics teaches that Pellethane™ 2355-80AE has a tensile strength of 5700 psi, a 100% tensile modulus of 900 psi, and a durometer hardness of 85 Shore A. Mitchell teaches that the

outer layer provides the flexural fatigue strength, modulus of elasticity, tensile and tear strength, and abrasion resistance for the membrane (col. 9 lines 17-21). It is the examiner's position that, since two layers of the Pellethane™ material are present in the membrane, the overall membrane would have similar tensile strength, tensile modulus, and hardness values when compared with Pellethane™ itself. Thus, the membrane would inherently possess the applicant's claimed tensile strength, tensile modulus, and hardness values.

9. Regarding claim 183, Mitchell teaches that the barrier material should have the ability to withstand high cycle loads without failure at a thickness of 5-50 mils (col. 5 lines 62-65). The nitrogen is injected into a closed container to an inflation pressure of 5-50 psi (col. 15 lines 23-36). Although the reference does not specify the durability of the formed membranes, it is the examiner's position that the membranes would inherently possess the applicant's claimed durability, since the membranes are formed with materials having the applicant's claimed tensile strength, tensile modulus, and hardness values.

10. Claims 51-52, 184-185, and 189 are rejected under 35 U.S.C. 102(b) as anticipated by Murakami. Murakami (US 5,578,372 A) can be found on the applicant's Form PTO-1449.

11. Murakami discloses composite films having a base film, a coating layer containing a vinylidene chloride polymer, and a polyurethane laminating layer (abstract). The films are used in packaging and have high gas barrier properties (col. 1 lines 20-22;

col. 2 lines 22-25). Thus, one of ordinary skill in the art would recognize the packaging films as flexible membranes. The base film includes PET and nylon materials (col. 2 lines 54-61). Polyol components for forming the polyurethane include polyester polyols formed from polyols and polycarboxylic acids (col. 6 lines 14-23). Suitable polyols include ethylene glycol, propylene glycol, butanediol, hexamethylene glycol, and neopentyl glycol, while suitable carboxylic acids include succinic acid and adipic acid (col. 6 lines 24-42). The examples of Murakami show oxygen permeability values as low as 3.7 $cc/m^2/24$ h, showing that vinylidene chloride content can be altered to decrease the oxygen permeability. Because oxygen gas and nitrogen gas are both diatomic molecules with similar sizes, it is the examiner's position that a membrane having the cited low oxygen permeability would have the applicant's claimed nitrogen permeability rates.

12. Also, it is the examiner's position that, because the reference teaches using the same materials as the applicant, the membranes of Murakami's invention would inherently possess hydrogen bonding between the first and second layer. The materials of Murakami's invention have the same functional groups as those of the presently clamed invention.

13. Claims 51-52 and 189 are rejected under 35 U.S.C. 102(b) as anticipated by Martin. Martin (US 4,513,058 A) can be found on the applicant's Form PTO-1449.

14. Martin teaches bladders for footballs comprising a thin layer of coating on a polyurethane film, the coating comprising EVOH, polyamide, or vinylidene chloride

copolymers (abstract). Because the coated films serve to control air permeation (col. 1 lines 38-45), one of ordinary skill in the art would recognize the bladder films as flexible membranes. Example 1 shows the use of a polyester-based urethane film. The coated films have low oxygen permeabilities (as low as 1.5 cc O_2/m^2/24 h, example 1). However, the reference does not teach nitrogen gas permeability. Because oxygen gas and nitrogen gas are both diatomic molecules with similar sizes, it is the examiner's position that a membrane having the cited low oxygen permeability would have the applicant's claimed nitrogen permeability rates.

15. Also, it is the examiner's position that, because the reference teaches using the same materials as the applicant, the membranes of Martin's invention would inherently possess hydrogen bonding between the first and second layer. The materials of Martin's invention have the same functional groups as those of the presently clamed invention.

Claim Rejections - 35 USC § 103

16. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

17. Claims 51-52, 176, 181, 186, 189, 192, and 195 are rejected under 35 U.S.C. 103(a) as being unpatentable over Polymer Applied Technology in view of Mitchell et al.

Polymer Applied Technology (JP 58-22163) can be found on the applicant's Form PTO-1449. The examiner references the provided translation of the Japanese reference.

18. Polymer Applied Technology discloses gas barrier membranes comprising an EVOH copolymer and a polyurethane (p. 2, section 2). The membranes show a helium gas permeation of 200 $cc/m^2/24$ h (p. 2, last paragraph-p. 3 line 4). Polyester diols are noted as reaction materials for forming the polyurethane (p. 4 lines 6-9), as are chain extenders (p. 4 lines 14-17). The materials may be co-extruded to form the laminate (p. 4 lines 23-25; p. 5 lines 3-6). However, the reference does not specify the nitrogen permeation of the membrane. Mitchell teaches a laminate comprising EVOH and polyurethane layers, where the thickness of the layers helps determine the nitrogen permeation (col. 11 lines 28-39). Desirable nitrogen permeation values are below 10 $cc/m^2/24$ h (col. 4 lines 35-46), but complete gas exchange prevention is not desired (col. 10 lines 55-65) to form a nitrogen-retaining gas-filled cushion having improved gas retention. Nitrogen gas is preferred because of its excellent availability, cost, and weight (col. 11 lines 61-65). Polymer Applied Technology notes that the laminates may be as thick as necessary (p. 5 lines 3-4). Because the invention of Polymer Applied Technology is directed to gas-filled enclosures (p. 2 lines 14-20), it is the examiner's position that it would have been prima facie obvious to alter the thickness of the layers of Polymer Applied Technology to achieve the applicant's claimed nitrogen transmission rate. Motivation for choosing such a nitrogen transmission rate would have been to form a gas-filled enclosure having improved nitrogen retention, where nitrogen is desired for its excellent availability, cost, and weight.

Double Patenting

19. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

20. Claims 51-52 and 184-187, and 189 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 51-52, 2-3, 5, 7, 25, and 33 of U.S. Patent No. 6,013,340 A. Although the conflicting claims are not identical, they are not patentably distinct from each other because of substantial overlap of limitations. Claim 51 of the patent differs only from present claim 51 by further limiting the membrane to be sealed and in an inflated state. In the interest of reducing volume, it is the examiner's position that it would have been prima facie obvious to store or ship the membrane in an unsealed, un-inflated state, thus arriving at the present claim. Patented claim 52 parallels present claim 52.

21. The limitations of patented claims 2-3, 5, 7, 25, and 33 parallel those of present claims 184-187 and 189. Because the limitations are disclosed together as limiting the same flexible membrane, it is the examiner's position that it would have been prima

facie obvious to combine the limitations of the patented claims with the subject matter of patented claim 51, thus arriving at the present claims, with the expectancy of beneficial results.

Allowable Subject Matter

22. Claims 182, 188, 190-191, and 193-194 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

23. The following is a statement of reasons for the indication of allowable subject matter:

24. The closest prior art, Mitchell et al. (US 5,952,065 A), discloses a gas barrier membrane comprising an EVOH layer and a polyester polyurethane layer formed by co-extrusion. However, the reference does not teach the variation of thickness of the membrane, does not teach blending the polyurethane with other materials, and does not teach the applicant's claimed polyester polyol. It is the examiner's position that these limitations provide a novel and unobvious step over the prior art.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melanie D. Bissett whose telephone number is (703) 308-6539. The examiner can normally be reached on M-F 8-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on (703) 308-2462. The fax phone

numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

mdb
May 15, 2003

Supervisory Patent Examiner
Technology Center 1700